flowthrough rates and the need for manual service order provisioning in certain circumstances are explained in further detail below.

Q. Explain the process by which average work times are adjusted in the model to reflect the frequency with which a given activity is performed.

A. Average work times are adjusted within the non-recurring cost model according to the frequency with which the activities are expected to be performed. Field managers were polled by the cost analysts to determine in today's environment how often a given activity is performed in the ordering and provisioning of CLEC requests for UNEs and services. As a result of this poll, Verizon developed a Typical Occurrence Factor (between 0% and 100%) to reflect and adjust for the frequency with which a given activity is performed.

Q. How are average work times adjusted in the model to reflect the frequency with which a given activity will be performed in the future?

A. A Forward-Looking Adjustment Factor is used in the model to adjust for the frequency and time required to perform a given activity in the future. This factor is designed to reflect system enhancements and efficiencies expected to develop during the non-recurring cost study planning period.

Q. How were these forward-looking adjustment factors developed?

A. The panel of 15 subject matter experts that reviewed the average work time survey results developed the forward-looking adjustment factors. Each subject matter expert was directly involved in establishing and/or improving the provisioning process for UNEs. The experts who developed these adjustments were experienced managers from work groups who are and will continue to be involved in the provision of wholesale services. The experts were asked to estimate what percentage of today's work would still be required in a forward-looking environment based on expected gains in labor productivity and mechanization advancements. As with the survey participants, subject matter experts also were provided detailed instructions (see VZ-VA CS, Vol. XI, Part H, Section L) on the importance, purpose, and intent of the analysis.

Q. What has been done to ensure that the underlying data remain forward-looking?

A. To ensure that the data used in its non-recurring cost studies remain forward-looking, Verizon VA reviewed the Typical Occurrence and Forward-Looking Adjustment Factors that were used in its earlier studies. Some of the Typical Occurrence Factors were originally determined a year or more prior to this proceeding; as a result, Verizon VA undertook a review of the factors to

ensure that the starting point for Verizon VA's studies captures efficiencies realized since those factors were initially identified. VZ-VA CS, Vol. XI, Part H, Section M provides a copy of the correspondence sent to the individual work center supervisors who reviewed and modified, as appropriate, the Typical Occurrence Factors used in the non-recurring cost studies submitted in this proceeding.

Q. Please provide an example of a forward-looking adjustment in the non-recurring cost model.

A. Forward-looking assumptions in the non-recurring cost model include 50% reductions in the frequency of certain RCCC-related work activities due to anticipated advancements in mechanization that will allow RCCC technicians to access data systems more efficiently as well as the development of the Wholesale Provisioning Tracking System (WPTS). The WPTS will reduce the need for numerous telephone calls between the RCCC and CLEC centers by permitting the parties to exchange much of the necessary coordination information via a web-based interface between the respective provisioning centers. In fact, the WPTS system is one of the key forward-looking expectations that results in reduced forward-looking costs in the NRC Model. But there is no mechanized technological "system" on the horizon that could completely eliminate the RCCC's vital, real-time, detail-specific coordination

and oversight activities which CLECs rely upon and request on a day-to-day basis.

Q. Please explain how labor rates were developed in the non-recurring cost model.

A. Verizon VA's starting point for developing the labor rates was the base-year 1999 basic wage expense for each Job Function Code divided by productive hours. The Job Function Code is used to identify a specific type of work function, such as a TISOC Service Representative. Productive hours are the time spent on specific job functions, such as preparing orders and provisioning trunks. Labor rates must also recover the cost associated with an employee's non-producing time for activities such as training, clerical support and supervision of reporting personnel, as well as the costs for paid absence, premium time, payroll taxes, and benefits. These expenses are distributed over productive hours to produce the total directly assigned labor cost per hour. The labor rates for each functional organization are shown in VZ-VA CS, Vol. XI, Part H, Section E.

Q. How were the labor rates for this filing developed?

A. The labor rates were developed using total year 1999 expenses from data sources including payroll records, personnel, and time sheets.

Q. Are the labor rates levelized?

A. Yes. The non-recurring cost model levelizes the labor rates over a three-year planning period (2001-2003), for which Verizon VA believes realistic predictions can reasonably be made. The 1999 labor rate data was levelized over the three-year period by using an Annuity Factor, based on a 12.95% Cost of Money. The labor rate development is outlined in further detail in VZ-VA CS, Vol. XI, Part H, Section A.

Q. Are the labor rates used in the non-recurring cost model for Virginia specific to Virginia?

A. It depends. The non-recurring cost model uses different labor rates depending on the Job Function Codes and the geographic locations of the functional organizations actually performing the work. For example, the functional organization Central Office Frame uses the labor rates developed for CO technicians that work in Virginia. The TISOC, on the other hand, uses the labor rates developed for the Network Services (NSI) organization, which are an average of the labor rates for the four TISOCs located within the original Bell Atlantic footprint. These TISOCs, whose jurisdictions are not limited to any specific state, are located in Silver Spring, Maryland; Newark, New Jersey; Pittsburgh, Pennsylvania; and Falls Church, Virginia.

Q. Are all of the non-recurring costs that Verizon VA calculated for these proceedings produced by the NRC cost model?

A. No. Separate studies are performed for ISDN loop electronics and splitter installation. These two studies are explained in the xDSL and Line Sharing portion of the testimony, above.

Q. How does Verizon VA assure that there is no double recovery of recurring and non-recurring costs?

A. The only costs reflected in Verizon VA's NRC studies are the one-time costs that are incurred as a direct result of receiving and filling a CLEC request for service. These costs are not part of the costs associated with the initial investments in network facilities and are not costs that are incurred in generally maintaining those facilities. Thus, these costs do not find their way into either the investment or expense portion of recurring rates. In addition, as discussed in the section of this testimony concerning ACFs, to eliminate any possibility of double recovery, Verizon VA adjusts the Wholesale Marketing and Network ACFs used in the recurring cost study by subtracting an amount equal to the total non-recurring revenues from the customer interfacing (service order) and provisioning (network) expenses for the 1999 base year period from which the ACFs are calculated. This subtraction

ensures that the ACFs used in the recurring cost study do not reflect any of the non-recurring expenses for which Verizon VA is seeking recovery through non-recurring rates. The development of the recurring ACFs is discussed earlier in this testimony.

Moreover, Verizon VA recognizes that recovering recurring charges up front as non-recurring charges could unfairly burden CLECs and deter entry to the market; thus, the NRC study does not include any recurring costs. As noted above, the non-recurring cost surveys are designed to document all work activities involved in filling specific individual CLEC orders; no work activities involved in simply maintaining and building out the network are captured.

Q. How are expedited costs developed?

A. Costs for expedited service (*i.e.*, service provisioned sooner than the standard interval) were developed based on expedited labor rates which were calculated by multiplying basic salaries and wages by an expedited ratio before adding direct supervision, clerical support, absence, payroll taxes, benefits and miscellaneous expense components. The expedited labor rates were then trended and levelized. The expedited ratio (1.710 for Virginia) was developed from actual 1999 data. It was calculated by taking the ratio of the total productive overtime wages and salaries per total productive overtime

hours to the total basic and productive wages and salaries per total basic and productive hours.

Q. Are additional costs incurred for an expedited interval?

A. Yes. Requests for expedited service require adjustments to workload and schedules to accommodate such requests and, consequently, are more costly to provision because of the need to perform the work outside of normal working hours, or to shift other work to an out-of-hours schedule. Work performed out-of-hours is paid at a premium over normal working hours wages. The expedited interval costs are adjusted for these more costly labor rates.

Q. Were Verizon VA's non-recurring costs subject to a statistical review?

A. Yes. Consultants at NERA used the data collected by Verizon VA to calculate the statistical precision of Verizon VA's non-recurring costs.

Q. Can you summarize the statistical work performed by NERA?

A. Yes. NERA used the independent individual responses from the non-recurring time surveys to calculate the average times and variances for the non-recurring work activities. NERA combined these results with other non-recurring model inputs provided by Verizon VA, including (but not limited

to) Typical Occurrence Factors, Forward-Looking Adjustment Factors, and labor rates, to calculate the precision with which Verizon's non-recurring costs are estimated. Precision levels were calculated for both normal and expedited delivery. The precision levels derived for each UNE are shown in Attachment E to this testimony.

Q. Why is it necessary to assess the precision levels of Verizon's non-recurring costs?

A. It is, of course, impossible for Verizon to measure the time it takes to perform every future instance of every non-recurring work activity, and use the averages of these instances to develop non-recurring costs and rates. The Verizon NRC model develops non-recurring costs based on average work activity times that are calculated from samples. As a result, the non-recurring costs based on the sample averages might differ from those that would be calculated using all actual future instances of non-recurring work activities. In statistical language, this difference is known as "sampling error." Statisticians have developed techniques for quantifying the degree of sampling error (precision) in any given situation. The precision levels shown in Attachment E quantify the likely degree of sampling error that is embedded in Verizon's proposed non-recurring costs. For example, a precision level of 30% with 95% confidence means we can be 95% sure that

the non-recurring cost, based on the samples, is within 30% of the actual, or "true," average non-recurring cost. A 20% precision level means we can be 95% sure that the non-recurring cost is within 20% of the actual or true average cost. Thus, smaller precision levels are better than higher precision levels.

Q. Can you interpret the precision levels calculated by NERA?

A. Yes. The precision levels shown in Attachment E are, for almost all UNEs, quite small. This means that there is a very high likelihood that Verizon's proposed non-recurring costs are very close to the "correct" average non-recurring costs. For all but a few UNEs, there is a 95% chance that Verizon's non-recurring costs are within 15% of the correct ones. Thus, Verizon's proposed non-recurring costs provide a strong basis for the establishment of non-recurring rates for unbundled network elements.

Q. Would you please provide an example of the difference between the forward-looking network used to determine recurring costs and the forward-looking network used to determine the non-recurring costs?

A. The network used to determine recurring costs reflects an increase from the current 23% to a hypothetical 57% occurrence of IDLC in the Verizon VA plant. As explained above, under TELRIC principles, this is due to the

assumption that the entire hypothetical network would mirror the percentage of new technology that Verizon VA anticipates deploying over the forward-looking planning period. However, in reality, the network likely will only have increased from the current 23% to 26% IDLC over that three-year planning period. Because the network used to determine *non-recurring* costs should reflect the actual costs that will be incurred in the real forward-looking network, the NRC studies assume that the network will consist of 26% IDLC and 74% copper/UDLC.

Q. What are the consequences of this difference?

A. If the forward-looking network used to determine recurring costs were applied without alteration to the NRC model, the model would seriously understate the costs Verizon VA incurs in provisioning UNE requests. For example, since a UNE-P can be provided on copper, UDLC, or IDLC, and since Central Office wiring is not required on an IDLC-provided UNE-P, the non-recurring CO wiring costs associated with provisioning UNE-P would reflect a 26% reduction if the non-recurring network assumption were applied. The 26% reflects the percentage of IDLC that should exist in the actual forward-looking loop plant at the end of the planning period. If the CO wiring rate were instead based on the hypothetical *recurring* network construct, however, a reduction of 56% would apply. Application of the 56%

IDLC reduction would clearly understate the costs Verizon VA will in fact incur to provision the average UNE-P during the planning period, given that at no point during that period will Verizon VA actually experience a 56% reduction in the costs it incurs (or the number of times it incurs those costs).

Q. How was the central office wiring cost for the UNE-Platform calculated?

A. The UNE-Platform will be provided on Verizon's actual forward-looking network. That network will reflect the mix of copper, UDLC, and IDLC facilities at the end of the three-year planning period. Because, as noted, a CO wiring charge is incurred only in connection with a copper or UDLC-provisioned UNE-P, the CO wiring cost for the UNE-Platform was calculated by multiplying the CO wiring cost by the percentage of copper and UDLC facilities in the forward-looking network.

Q. How was the OSP mix of technology, at the end of the study period, determined?

A. Verizon VA started with the mix of technology actually existing in Verizon VA's network in April 2001, which in Table C, below, is shown as the existing OSP network. That mix of technology was 67% copper and 33% digital loop carrier. Verizon VA records indicate that 70% of the new digital loop carrier placed in the network is integrated and 30% is UDLC. Verizon

VA expects that, based on foreseeable new installation, the copper portion of the network will decrease from 67% to 63% by the end of 2003. This would produce a forward-looking technology mix of 63% copper, 11% (37% x 30%) UDLC, and 26% (37% x 70%) IDLC. The factor used to identify the CO wiring cost for the UNE-Platform is thus 74% (63% copper plus 11% UDLC). The identification of the CO wiring costs for the UNE-Platform can be found in VZ-VA CS, Vol. XI, Part H, Section H, Tabs 36 and 37.

Table C

NETWORK TECHNOLOGY MIX AT THE YEAR-END 2003				
ITEM	COPPER	TOTAL DLC	% UDLC	% IDLC
A	b	c	d=c x .3	e=c x .7
Exiting OSP Mix	67%	33%	10%	23%
Future OSP Mix	63%	37%	11%	26%

Q. Does the NRC model assume that all stand-alone UNE loops must be provisioned over copper or UDLC facilities?

A. Yes. As described at length in the UNE loop section of this testimony, a stand-alone loop cannot be provided using IDLC technology in Verizon VA's network. As a result, the studies must assume that all stand-alone loops will be provisioned on copper or UDLC facilities, and that CO wiring costs will be incurred in connection with the provisioning of all unbundled loops. This is true irrespective of the specific IDLC technology deployed. In certain

earlier cost studies, Verizon failed to account for this real world operational fact. As a result, CO wiring costs were significantly understated and did not fully reflect forward-looking costs.

Q. Does the NRC study process reflect forward-looking Operations Support Systems?

A. Yes. The non-recurring cost process incorporates the effects of implementing forward-looking wholesale OSS and process improvements that reflect a forward-looking efficient environment. Key attributes of this environment include:

1. Electronic application-to-application ordering interface for the carrier;
2. Flow through service order and work order distribution process;
3. Fully automated, remote network activation process and system for all electronic elements;
4. Mechanized work force management and dispatch process; and
5. Intelligent, hand-held technician workstations allowing remote electronic work order close-out.

To the extent possible, Verizon VA's OSS are designed to maximize "mechanized," or electronic, flowthrough. The non-recurring costs reflect

Verizon VA's expectations of flowthrough three years into the future, a period for which realistic predictions might be at least somewhat reliable.

Q. Are manual service order processing costs appropriate in a forward-looking environment?

A. Yes. As a threshold matter, it is important to distinguish between "fallout" — that is, manual processing that is needed in connection with orders that are designed to "flow through" electronically close to 100% of the time but do not do so in a given case, often due to CLEC error — and situations in which manual intervention is required by design because mechanization is not technologically possible or would be too costly to be efficient.

Although opponents of Verizon's NRC model have frequently claimed that, in the future, all service orders will be handled electronically, and that any manual activity should therefore be considered "fallout," this assumption does not reflect reality. There are and will remain instances in which manual handling is the most efficient and cost-effective means of processing an order, or where systems simply do not yet, and may never, exist that would permit electronic flowthrough — even for orders that are initially entered using electronic interfaces. While Verizon VA's studies reflect the fact that in general, the percentage of orders that are handled manually will be

substantially reduced in the future, the studies also do and must recognize that some requests must continue to receive manual attention. Such designed or required manual attention is not "fallout" and must be accounted for separately. The rate of manual processing of an order is different for each UNE, depending on what steps are required to service a CLEC request. Verizon's NRC model accounts both for designed manual processing and for fallout occurrence rates.

Q. Please provide an example of the need for manual processing by "design," versus "fallout"?

A. Orders that will continue to need manual attention in the TISOC (the organization responsible for issuing a work order in response to a CLEC request) and provisioning organizations include complex orders for more than six lines at the same location, requests for end office trunk ports and interoffice facilities, and others. Notwithstanding further development of OSS electronic interfaces, such requests — such as orders for multiple loops or Integrated Services Digital Network (ISDN), for example — likely would be so expensive to mechanize entirely that any cost-savings from anticipated flowthrough would not be realized. The costs to mechanize the processing of such orders would likely be far greater than the cost to process such requests

manually. Thus, TISOC forward-looking estimates assume that manual processing will continue to take place for complex wholesale services.

Another example of an order that requires manual processing is an order for a Digital Designed Loop for xDSL. This type of order is extremely complex and cannot be handled solely on a mechanized basis. In processing this type of order, the TISOC representative must evaluate the order, identify the appropriate Outside Plant engineer, and convey the detailed requirements specified by the CLEC (some of which may be narratives in the Comments field of the LSR) to the engineer via Verizon's RequestNet system. The TISOC representative then monitors the status of the order until the appropriate engineering work order is issued, calculates the expected date due (based on the estimated Construction work group complete date) and conveys the due date (via the FOC) to the CLEC. Such complex tasks, involving many interrelated functional organizations, work groups, and the CLEC itself, must be handled manually. Even if that were not the case, the low volume of such orders would not justify the cost of designing a mechanized flowthrough process.

TISOC estimates also reflect the fact that in certain instances — which account for a smaller manual processing percentage than those requests that are not designed to flow through — manual processing will be needed to address, among other things, CLEC errors in improperly prepared

LSRs or ASRs, duplications, and requests associated with non-working service or inaccessible end users. This can be appropriately described as "fallout," as opposed to the prior TISOC example. Such problems should grow relatively infrequent as all participants in the process become more experienced, and the study, through the application of forward-looking adjustment factors, reflects this assumption. However, when such errors do occur, manual response will be required.

Q. What types of activities inherently require manual intervention?

A. Although the NRC model recognizes that in some cases work performed by the RCCC will be totally eliminated, or in other instances reduced by 50%, it is also clear that the RCCC will continue to play a critical role in the CLEC provisioning process, performing activities that, by their nature, must be performed manually. The RCCC provides Verizon VA's only contact with the CLEC in the establishment of new service, in coordinating the transfer of working loops ("hotcuts") to CLECs, and in CLEC-to-CLEC loop transfers. In conjunction with the coordination between Verizon VA and the CLECs, the RCCC also must coordinate various Verizon organizations, including the TISOC, RCMAC, CO Frame, and Field Installation, to ensure the smooth handling of the loop installations and the quality of the transfers. There is no mechanized technological "fix" on the horizon that could eliminate all these

vital, real time, detail-specific coordination and oversight activities that CLECs rely upon — and indeed request — on a day-to-day basis. In fact, the RCCC exists because the CLECs themselves requested it.

Activities handled by the RCCC must be performed in order to ensure the delivery of quality service, and in most instances are being performed at the request of the CLECs. Even if these activities were not performed by the RCCC, they would still need to be performed by some functional organization. In all likelihood, this other organization would not be able to handle them as efficiently as the RCCC, because it would not be equipped or structured to deal directly with the CLECs.

Q. Please detail some additional specific activities performed by Verizon functional organizations that must continue to be performed manually?

A. It is also clear that even while it is anticipated that some support functions will be mechanized, the physical field installation work activities performed by Verizon VA personnel will not be affected appreciably (if at all) by the introduction of the new wholesale OSS interfaces. A field dispatch is not necessary in the case of every CLEC request (and the NRC model does not assume such a dispatch frequency). However, field activity clearly will be required, for example, in the provisioning of a "new" service request when

there are no existing facilities available with cut-through capability to the end user, or when a CLEC specifically requests a dispatch.

Moreover, it is clear that in the future, as explained earlier, requests for a single two-wire loop must be provided over copper, utilizing UDLC. This means that Verizon necessarily will be required to continue to perform manual Central Office activities.

Q. Please explain Verizon VA's treatment of disconnect costs.

A. Disconnect costs (*i.e.*, the costs to terminate service) are developed in the same manner as described for service provisioning, but are then discounted for the time value of money based on a 2.5-year forecasted service life and a 12.95% cost of capital. Discounting these costs properly recognizes that Verizon VA will not incur disconnect expenses until some time in the future (assumed to be the average UNE service life).

Disconnect costs are then added to the connect costs to determine the total non-recurring costs. For example, the two-wire loop's CO wiring and provisioning costs include both the loop's connect and disconnect costs.

Q. Why is it appropriate to add disconnect costs to connect costs?

A. It is appropriate to combine the costs of the one-time activities necessary for connection and disconnection because it is standard practice in the

telecommunications industry to recover total non-recurring costs at the time the ordering and provisioning occurs. The recognition of disconnect costs at this time allows Verizon VA the opportunity to properly recover the disconnect costs from the cost causers. By discounting the disconnect costs by the present worth of money, Verizon VA ensures the proper cost recovery for the future expenditure.

XIII. RESALE DISCOUNT
(JDPL Issues II-1-a; II-1-d; II-2-d; IV-30; IV-36)

Q. What is the purpose of this section of the testimony?

A. The purpose of this section of the testimony is to describe the methodology that Verizon VA has used to determine the appropriate discounts that apply when Verizon VA's retail telecommunications services are resold by carriers pursuant to § 251(c)(4) of the Telecommunications Act of 1996. We have filed an avoided cost study with supporting tabs that identifies the specific costs Verizon VA avoids in making its retail telecommunications services available for resale in Virginia. There are two scenarios presented. One is where the reseller continues to use Verizon VA Operator Services and Directory Assistance (OS/DA). The other is where the reseller uses its own platform (or the platform of a third party other than Verizon VA) to provide OS/DA functions.

Q. Please explain the term "resale discount rate."

A. It is the discount applied to Verizon retail rates in determining the price resellers pay for Verizon telecommunications services available for resale. The rate is calculated by determining the costs that Verizon actually avoids when providing resale services and dividing this figure by the revenues Verizon receives for these services at retail.

Q. Does the avoided cost study that you are presenting comply with current federal law?

A. Yes. On July 18, 2000, the Eighth Circuit issued its decision in *Iowa Utils. Bd. v. FCC*, 219 F.3d 744 (8th Cir. 2000), *cert. granted sub nom., Verizon Communications Inc. v. FCC*, 121 S. Ct. 877 (2001), finding that the retail avoided costs are only those that "the ILEC will *actually avoid* incurring in the future, because of its wholesale efforts, not costs that 'can be avoided.'" *Id.* at 755 (emphasis added). The Eighth Circuit also ruled that the avoided costs should recognize that the ILEC would continue to offer its services for retail. On January 22, 2001, the Supreme Court of the United States granted a petition for writ of certiorari in Docket No. 96-3321 with respect to the Eighth Circuit's decision, but certiorari was limited to three questions, none of which involves the methodology to be used in calculating the retail avoided costs. As a result, the Panel understands that the decisions reached by the Eighth Circuit on this issue represent the final word on the applicable law. Verizon's retail avoided costs calculations are designed to comply with the guidance provided by the Eighth Circuit.

Q. Is the avoided cost study presented here for purposes of determining the resale discount rate the same avoided cost study used in the calculation of the annual cost factors?

A. Yes.

A. METHODOLOGY

Q. Please describe the methodology that you used to determine Verizon VA's actual avoided costs.

A. To calculate the resale discount, Verizon VA analyzed its expenses by function codes, which are used for accounting purposes to correlate Verizon VA expenses with specific activities or functions. This information was taken from Verizon VA's 1999 functional accounting data, which is kept in the ordinary course of business. Verizon VA used 1999 data because it was the most current annual period for which complete accounting information was available. (VZ-VA CS, Vol. VIII, Part F-6, Tab 13 provides a short description of each of the function codes)

Verizon VA analyzed this data as follows:

(1) The total company expenses at the function code detail (VZ-VA CS, Vol. VIII, Part F-6, Tab 5, Pages 1-13, Column E) were multiplied by the Part 64 regulated factors (Column F), which yields regulated expenses by function code (Column G). From this number, Verizon deducted expenses relating to Shared Network Facilities Arrangements (SNFA) and Other Adjustments (Column H) to yield the Adjusted Regulated Expenses (Column I). These expenses are "subject to separations." (As explained in more detail below,